

DRAGON USER



April 1987

The independent Dragon magazine

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Competition

Go round and round a dashboard to make a set of cubes, and win Angeword. And the final installment of the Recreational Mathematics Glossary.

Editorial

SO! A Dragon owner wins Incentive Software's second Moon Cresta competition, in the face of massed Spec-ry and Amstrad owners as well as fellow Dragoners. That I tell 'em the Dragon's still here. Well done Andrew Hill of Gwent.

I hope to be seeing some of you (all of you would be just fine, but Dai has readers as far away as Australia and the USA, so I'll settle for 'some' this time) at the London 8808 Show on the morning of March 28th, aka, if God permitting, but, like any other nightmare, I wish in spite of smoke at noon, so come early if you want to nag me about anything.

Those who are too far north to make the London show should remember the Covent Show on 19th April. Details of both shows inside.

Thanks to other contributors and editors, including Philip Seed of NDUG, who wrote to me about last month's editorial.

And who also spotted the deliberate mistake in the March Letters Page? Well, I suggest you go back and read it again then. See you at the Show.

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How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent depend on the quality of the documentation that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 5000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please keep a copy if you intend to use your program returned you must include a stamped addressed envelope.

Letters

Beat the jungle

FOR those of us who own *Pie Force* by Caricodawl, and find that they are getting frustrated by the fact that they cannot get past the "crack troop" infested jungle, I have found a way to go out to the next phase and miss out the jungle.

1) Make sure that there is only one joystick plugged in!

2) Once the game has loaded, press the fire button so that the computer shows the so-called colour screen. Then press 'R'.

3) This gets into the authorisation code screen. Then press 'G'.

4) This will give you the pass code screen. Using the joystick to move around type out "MFTG" with no spaces. Then go on to the vertical arrow.

5) This then catapults you past the jungle.

Your reader's might like to note that if the *Break* key is pressed during a normal game, before they hit out of men, they will be sent back to the beginning with eight men but with their old score to recombine where they left off last time... and so to build up their score.

And a note of appreciation. It wasn't for people like the *Break* key, the country you do sign in is lost. Well, Dragon owners would, anyway.

Conrad

4 Rawston Down Road

Gloucester

Somer

DN1 4AG

Buzz discounts

DUE to lack of support, and admittedly through our own lack of organisation, we have decided to use the months up to July 1987 to re-organise. We will however be attending the computer show at Cusset, West Yorkshire on 15th April. We will be demonstrating all our software, including our new Tandy range. We hope to improve our services to the Dragon market in the future. Buzz Software are offering a 10 per cent reduction in our soft-

Every month we will be shelling out a game or two, courtesy of Microdeal, to the readers who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your tips and suggestions. Send us your best Dragon stories. What if you think we are, mind readers?!

EXTRA
PUFF

Beware the hunting Dragon!

I read with interest the March edition of *Dragon User*, and particularly the Editorial.

One serious problem within the 'amateur' publications as I myself know is a lack of articles. Newsletter's such as *Dragon Monthly*, *Dragon's Tail* etc, even even myself with the *Drag Mag* (Preston NG16 8EN), quick plug! depend heavily on readers' articles, and it would appear from your editorial that you wish all articles, etc. to be oriented on *Dragon User*.

Surely these amateur publications have a place. Suppose *DU* eventually comes

comes to an end, then user groups and newsletters will be all the *Dragon* has on offer.

On the brighter side, I don't doubt that *DU* requires a great extent of articles, but surely there are enough *Dragon User* to feed any publication with articles. The time has come when we ALL must participate with our beloved mags, helping every magazine/newsletter to continue its work... keeping the *Dragon* alive!

Simon Jones

27 Coles Meadow

Marlow

Bucks MK35 4EN

and knowledge in the *Dragon* world which is often not offered to *DU*, either because those who have it have not got the time to organise and write it up, or because it has occurred to them that *DU* might want to see these ideas developed.

What I am suggesting is not that users should stop contributing to other newsletters, but that they should consider whether their ideas can be developed for *Dragon User's* readership before consigning them in brief to their own user group, etc. I don't see this as a threat to user groups. On the contrary, the more that separate groups are able to exchange ideas on common ground, the more ideas will be, and this will in turn give rise to further ideas for readers to contribute to their own groups or newsletters.

The more active *Dragon* users are, the more response they will get from other users; this is just as true for newsletters as it is for *Dragon User*.

apart to anyone who writes to us telling us what they would like to see for the *Dragon* and Tandy.

I would also like to hear from anybody from America wishing to swap games, information, etc. for the *Dragon* 32 and Tandy 86 computers.

S. J. Davidson
Buzz Software
10 St. Stephen Road
Perkash, St. Mary's
Chester, W40 3AM

Boost morale

In the January 1987 edition of *Dragon User* the Expert said "and so the new year dawns, bringing with it new hope, unless you own a *Dragon*, in which case you've probably completely given up hope!" This is damaging to the morale of the *Dragon* community. I certainly have not given up hope and feel very optimistic provided damaging and mindless suggestions are kept out of the view of *Dragon* users. I would like to see an apology printed by the Expert.

Anyone who regularly watches BBC 2's *Where Lee* will notice that the *Dragon* is always left out of the reports. I have written to them complaining about this several times but I have never received a reply. There must be thousands of *Dragon* Users who watch this, and if the majority of them write to the BBC and complained about it then I think it would convince them involved that the *Dragon* is alive and kicking.

Finally, for the benefit of the Editor, Mike Gerrard, and all those at Microdeal who can't read my address, it is below.

Donald Morrison
72 Conestable Road
Inverness
Scotland IV2 3DF

PS I'm having trouble trying to generate user token's properly. Can anyone help? Alas does anyone have any codes for *Demolish* or the code to activate the cheat function in *Demolish*?

WE asked The Expert for his comments, and he says that:

damaging and mindless suggestions are his favourite kind, and would anybody who has any sense send them to him at once. He also said 'I'm very sorry the cheque hasn't arrived yet'. Well, it's an apology. We think.

We regret that we can't print details of users' disputes with suppliers, for very sound legal reasons. Where a reader has a legitimate and intractable dispute, we can try to establish where the problem lies and pass on any relevant information. However, while orders can get lost and have to be chased up, we do think that chasing an order placed on 1st of January on and before the 31st of January is over-optimistic. It is generally acceptable to allow 28 days for a mail order delivery before starting to worry. 36 days for final delivery is indeed a bit on the lengthy side, but not unusual when a company has to deal with a rush of orders.

It is a very good idea indeed to write to the BBC about *Mirror Live*, and let them know that the Dragon is attractive. We think that they will be more receptive to the Dragon world if letters are phrased as suggestions rather than complaints.

Epson update

To me in my apparent ignorance an Epson is an Epson is an Epson — or was. Recently my Epson (an FX-60) broke down and I was forced to purchase another printer. Not being able (or willing) to pay out for another Epson, I purchased a cheaper one described as 'Epson compatible', and all my printing programs functioned identically.

However, a reader has questioned the compatibility of my February article and his Epson printer (an MX-80 Type B). From what I could see from the photocopies of a few of the pages of his Epson manual that he sent me, it could well be that the code that I use to set the printing modes (27, 33... or ESC?) is NOT valid on this type

of printer. As the program sets up the codes into variables (lines 206+), at least it is a relatively simple task for such users to substitute appropriate codes — for example, to print enlarged (as also available on my FX-60), line 260 could be replaced with: `ENL=CHRG(M)` — shift out. The principle of the article was to show that by setting up the codes once at the beginning of a program, it is a simple task to control and change typewords during operation by using two character variables that by setting out copious sets of codes each time and as a principle, this still holds true.

My apologies to those Epson users unable to use the program as supplied — and thank you for extending my obviously limited knowledge of Epson printers!

Pat O'Leary
27 Mycorinth Lane
Widdow Green
High Wycombe
Bucks HP10 0NP

About Analyzer

With regard to your reader who wrote about the print routine in *Analyzer* (Mr. Van Wieringen-Damstra), there seems to be no problem there except that he did not realise that *Analyzer* prints a space between calls for readability, he must think it's a word processor.

I have written some alterations to allow printing without spaces.

To remove these spaces requires a change in the program. That you would have to type the text across the calls with spaces where desired, making the screen display look odd.

Please note that part of line 303 should read:

```
PRINT"Y50+X,C0G000"
```

where 0 is the letter and not zero. This will give a proper output. The other error is:

```
187 F0READU(PROMC+M,  
FORK,RQ)
```

The program cannot be compiled as written, but if anyone sends 10 Australian Dollars by

bankers order, and a copy of their compiler with instructions, I can write and send a version that will compile.

Printer test example

```
131 P2=CCCCCCCC:FT=12  
THEN ELSE PLAN B5:PRINT  
"space?":CCCCCCCC:FT=12  
THEN H0:ELSE FT=178  
THEN P3=TELESEP0-S:PLAY  
B5:PRINT"no":X=2:CCCC  
CCCC:FT=12 THEN H0:ELSE  
PLAN B5:P3=CCCCCCCC:  
THEN P2=CCCCCCCC:FT=12  
ELSE FT=130  
X=X+P3:FOR X=TEC:FOR  
ESC:X=0:CCCCCCCC:X=X+P3:  
NEXTPRINT:GOTO  
T000
```

The above changes allow printing without spaces between calls with *Analyzer*. This may be useful when using *Analyzer* for presentations where some continuous text may be needed.

To use the facility type 'to get CCCCCCCCC, then P (print) and choose the start row. You are now prompted with ESC:ESC which is the default so that if you do not press R, *Analyzer* prints with spaces. If you pressed R, you are prompted with TAB, which allows you to print with a tab of zero, which is the default, to fifteen. Therefore to have the text all the way to the right, enter 15.

In the above example the line C0 is printed three times. The first line is with spaces as typed in. The second line is without spaces and zero TAB. The third line is without spaces and TAB15.

Note that calls C00 and C000 start with a space and to do that you must type a letter to get into INPUT and then backspace and then press the space bar.

Now to clear up a possible confusion with giving the print-out a title. To give the print-out a title press I then T and enter the title.

If you now wish to use the title, again press I then T. To leave the title untouched, press CLEAR. If you press ENTER, the title is erased. If you type something and press ENTER, then this is the new title. The title gets printed when you choose the P (print) option.

Lothar Pitt
71 Woodville Road
Moorbank, 3130
Victoria,
Australia

Coventry call

I WOULD like to hear from any Dragon owners in the Coventry area. Please send to the address below enclosing an SAE for details.

Glen Mollan
170 Alpine Road
Seymour Group
Coventry
CV4 6AA

Basic user

I WOULD like to know if any user groups still around, for an unashamed gamer and an ashamed person who still uses Basic.

Pear Hamilton
Derwent
Woodhouse Road
Ilkley
Shropshire
WF12 5AL

Slipping belt

I AM having trouble with the drive belt on my disc drive slipping. Does anybody know where I can obtain a new belt?

I have also noticed many requests for a listing service. I can supply listings on other data wheel or dot matrix printer with only a small charge to cover costs. Please write (with SAE) if you want help.

M. Burridge
43 Midford Road
Combe Down
Bath BA2 5PW

Tandy pal

I would like a person who owns a Tandy to exchange ideas, etc.
Shane Harper
17 Carlton Close
Cleethorpe
South Humberside
DN22 6ND

News desk

Index interest

MAGBASE is a menu-driven database from Pulver Software, specially designed for indexing articles and letters, etc. from magazines. Records can be saved on tape or disc for future reference, and a single saved disc could contain 2000 records in a single file or combination of files. The program can also ALTER, DELETE, SORT in alphabetical order, VIEW, PRINT and MERGE. A complete disc file can be VIEWed as a check on the records contained within it.

The LOAD option allows loading either of an all file (if the memory permits) or a MAFined block. The latter is useful if it is possible to load records by numbers (eg 1 to 100), characters (eg from A to Z) or pattern search (using any keyword). For example, if the keyword 'free' is entered in a pattern search, Magbase will access any records with that word, within seconds, and display them on the screen.

The PRINT option caters for the Seikosha and Tandy printers at 80 characters a line, but other printers can be used by defining alternative print codes. Records can be double spaced for less than 80 characters a line or for easier reading.

Dragon User files

DU contains 680 records of all letters, articles and listings since Dragon User began in May 1983. Each record contains information on the subject area, date, and page of each item.

The DU file can be loaded into the Dragon's memory all at once, as it has over 50K of records. It can be viewed (C = DragonDOS) or loaded in marked blocks. Records have been sorted and saved in alphabetical order, and, in addition, it has been saved in small blocks (A-C, D-E, F-L, etc.) for access to all of a file.

DU hard copy

The hard copy consists of a photocopy of the printed off the records from May to the present. If the tape or disc are purchased with the records it is possible to produce your own copy by using the PRINT option. If you purchase the hard

copy you will receive a twelve page booklet.

Contact Pulver Software at 36 Foxhill, High-Crompton, Shaw, Cleitham, Lancs OL2 7HG for details of prices.

Other utilities, mostly disc based, from Pulver include *Design*, £1.99, which moves workspace from the first graphic page further into memory and moves the page to location 1536. Machinecode programs can be run with the DOS attached (84s or upgraded 385 only). *Zapper*, £5.99, which can explore and alter data in memory and on disc, move and copy sections of memory, copy and repair sections of a disc and investigate discs from other machines. Some printer and display utilities, and an extensive manual, are included and *Copy Cat*, which simplifies disc copying, from double to single and vice versa, and to partially filled discs without overwriting. Pulver will also reprogram DragonDOS sports with updates for £3.00. Add 50p post and packing for each item ordered.

6809 show

The east 6809 show at the Royal Horticultural Halls in Langston 28th March already has *Compusense*, *Compulink*, Harris Software, John Pearn Discount Software, Microdeal, Goulet Software, Peaksoft, Pansystems, Quickteam Software, Zone 4, the OS-9 User Group, National Dragon User Group and Dragon User itself booked to take part.

The best thing about missing the November show was finding out that we were missed — at this time there will be a DU presence, so if you have any friends who aren't subscribers and should be, bring them with you.

Information about the show itself can be had from Jenny Pope at JPRH Ltd., on St. Audley (0755) 61485.



Dragon wins yet another Moon Cresta

INCENTIVE Software's second Moon Cresta arcade machine has been won by a Dragon user. Andrew Hill of Swale, Wales (the original Dragon country) was the lucky winner drawn from a blue plastic compound bin by Christine Enkles, who many of you will recognise, even from this hasty snapshot, as the Editor of *Popular Computing Reply*.

Andrew scored over 30000 points and beat all those who discovered the words. Play another game on the screen at the end. "He phoned us up, and he was pleased and delighted to have won!" said Incentive's Ian Andrews. "We were please when a Dragon owner won, as well, because the second Moon Cresta competition was open to Amstrad, BBC and Dragon owners so, although only people who scored over 35000 points were eligible, there was a lot of competition." Moon Cresta was one of Incentive's biggest games of 1985, and is still selling well — although they are producing no new Dragon software, the Dragon Moon Cresta is still available.

Congratulations from all at Dragon User to Andrew! But tell us, just where is he going to put a full sized arcade game? We considered the lot, but someone pointed out that you wouldn't be able to reach the

controls. Oh well, back to the library.

Moon Cresta has been much seen in the land just lately. The winners of Dragon User's October competition each received a copy of Moon Cresta. All well and good, except that they were all expecting a copy of Boulder Dash. Indeed, some of them already had copies of Moon Cresta. What went wrong? We still don't know. Baby sent us a box of Boulder Dash which never reached its destination. Can we get any more Boulder Dash right now? Life cannot. Not for love nor money.

We will be putting the situation right as soon as we can. In the meantime, if anybody wants to swap their copy of Boulder Dash for a Moon Cresta or even a Pansys, drop us a line.

Compusense new address

COMPUSENSE have moved from their old premises in Palmers Green to a new address. They can be reached at the same box number, P O Box 168, but now at 25 Wroughtley Lane, London NW2. Their new telephone number will be 01 885 3353.

Money for something

TWO nineteen year old twin brothers from Towbridge, Wilt, have started their own software publishing business with a £40 a week grant from the Manpower Services Commission's Enterprise Allowance Scheme.

Philip and Andrew Oliver started buying computers five years ago, and quickly hit on the idea of trying to make money from their hobby. When they left school in 1980 they already had a fund of programming experience, and started to develop their games in earnest. Their first game, *Super Robin Hood*, earned them enough to join the ESA, for which they needed £1000 to invest in their business. *Super Robin Hood* has now sold over 11,000 copies and their next game, *Ghost Hunters* is already selling well.

Anyone who has been unemployed for more than

eight weeks, who can prove that they have a new business idea and access to £1000, can apply to join the ESA at their local Jobcentres. The allowance pays £40 a week for one year, as long as the business continues, to help new business ventures get off the ground.

Unfortunately, nobody has yet opted to convert these games for the Dragon.

Horse help

CAN we have a volunteer to review *Predictor*, a program which claims to help you work out how to win at the horses? A hardened gambler, preferably. No, we won't reimburse your losses. Our regular reviewers say its enough of a gamble waiting for their cheques every month. No.

Reader notice

WE publish readers' addresses on our letters pages, unless requested otherwise, to allow users to contact each other directly. These addresses are sometimes added to the mailing lists of Dragon

suppliers. While this can be to the advantage of all concerned, the commercial use of addresses taken from Dragon User does not imply that Dragon User has any connection with the businesses concerned, and normal caution should be exercised when dealing with any unfamiliar company from whom direct mail is received.



Missing persons

Please would contributors D. King and R. Andrews get in touch.

The editor would also like to hear from the gentleman who contacted her about shared use of a network before Christmas.



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Dragonsoft

Terrific Tangle Triumph

Program: *Tangleweird*
Supplier: Microdeal
Price: £5.95

TANGLEWEIRD is one of those series, an adventure game that successfully doubles as an arcade game. This may not mean much to you, but to the Editor it means a dilemma: every time a letter comes in asking for help on it. Does she send it to the Expert, or Mr. Wizard, or does she just section it off to the highest bidder?

That it is an adventure is unfortunate. The aim is to get *Beastard* to say the spell that will turn him from his now froggy state back to the majestic lion he once was and defeat the evil *Schark*, the property designer who has plans for the peaceful glades of *Tangleweird*.

This is the game that was going to be based on the kids' TV show *Willy the Wisp*, but for several reasons too complex and/or boring to mention, has materialised in this form. Before I go any further, let me say that it's a great game, destined to become a Dragon classic; I haven't finished it yet, and I've had help from the editor.

Intergame you have control of five characters, although when the game starts only four of them are around, the first problem being to get the dog back! The characters are controlled via the cursor keys and moved around on the scrolling map at the bottom of the screen, which gives rise to control a bit like the arcade game *Landstalker*. The map however is only visible during the day, and at night you have to rely on your memory (or your own map). Which brings us to a point that I forget to mention, which is that the game is in real time, and you have a timer. After ten days, *Schark's* sub-creatures arrive and *Tangleweird* becomes an office blockier park/tingle hall (delete as appropriate).

The screen is almost entirely downmarketised (and very graphic) map at the bottom, a coloured character that the player is controlling (yes, yes I'll get to them in a minute), a picture of the location the character currently belongs to is currently occupying literally a lot of the map, a cursor to

input conventional adventure commands and room for the responses to those commands, an inventory for the current character, an indicator to show that character's energy and an indicator to its status (ie safe, invulnerable to *Schark's* spells, or left blank). *Power! Right*, before we go any further I want you all to go back and read that paragraph again children. Hush now. *Fingers on lips*.

The characters you can control are as follows:
1) *Bruck*, a walaby. (Wp, a walaby. Well, you've got to give the author marks for originality.) Although *Bruck* is my favourite of the characters, he does have a lot of difficulty climbing.

2) *Pagham*, described by the author as a 'cat of considerable abilities', but he hasn't made them apparent to me! And, without his specs, he can't see in the dark. (I don't know if he's any better without them, they're at the bottom of a pond and I can't get them out.)

3) *Peabody*, a dog who, as already mentioned, needs some edible encouragement to come home.

There are two other characters in the game, moving independently on the main map, the first being *Schark* himself. He moves around *Tangleweird* during the day (no doubt with a team of architects and building consultants) and, as also mentioned, turns anyone he touches to stone.



4) *Schark*, a mouse who lost his whiskers in a previous encounter with *Schark*. This means that he needs a new set, and even when you know where they are and how to get them, and know both, you still can't get the damn thing.

5) *Beastard*, once a lion, now a frog. And what's worse is that there are no princesses around to kiss him! *Beastard* moves on the rivers, marshes and swamps, while the others move on the paths. However, at night he can go onto the paths which is useful as *Beastard* can free any of the creatures turned to stone by *Schark* (a tale I haven't had apparently in time, although I wasn't going to stick around and find out.) However, there's a catch. The longer he stays as a frog, the weaker his touch becomes until you have to do other things to get your characters back. Ah now, that would be telling!

However, he rests at night (yep, that's when he can't see the map). The last character is on your side.

There's no 'Halt' option in the game, but if, if you can get to him, will give a lot of useful advice to his wisdom.

Well, that's the main play area described. Now on to all the other bits. There are several little test only mazes, all with an essential location within them (as will all the best mazes).

There's then the Dwarf Dole. Now only some of the characters can get in here, but when they do get in here, it's a nice little ladders and walkways game which needs no less than three characters to get in and out for it to be solved. It's patrolled by rather nasty robots which make it even more infuriatingly hard than it is already.

Finally, there's Castle

Schark. This is the notorious 3D five level castle that *Schark* inhabits, and a can only be entered when a character is impervious to *Schark's* spells. The key is in there somewhere. (I think.)

Right, that's the game. Now onto the features that make it not just a great adventure but a really great one.

There are several special commands which I must skip over before summing up. 'Time' changes day into night or vice versa, 'Transfer' allows characters to pass objects to each other, 'Look' or 'F' gives a description of the current location, 'Search' allows you to turn on an automatic 'Look' at every location, and 'Heal' is an excellent feature which allows you to save game to memory.

Then, when you quit, the game starts again from where you last typed 'Hold'. The game does, of course, support tape 'Save' and 'Load', another feature has never let me down with perfect loading every time.

Finally, there is an option to hold the buttons off for an extra two weeks.

This option also keeps *Schark* tied up in 'board meetings' for the first 24 hours of the game, allowing the characters relative freedom.

A few playing hints: don't let characters go into beams, passing objects to each other, so that their energy meter gets too low to make a run to home when things get dirty with *Schark*.

Get to every location you can — necessary objects are often just lying around in the open. Every object has a use. Try to use search — there is a tendency when it's on, not to bother to read it.

To summarise, this is an excellent game, very hard, but progressive, it is problems flow nicely, the plot works, and the added elements like Dwarf Dole and Castle *Schark* complement the game.

Tangleweird deserves to be as popular as *Darkstalker*, and that must be the highest recommendation an adventure can get.

Jason Chisall



Program: Fire Force
Supplier: Quickbeam
Price: £9.95

QUICKBEAM's new all-action arcade game *Fire Force* held my attention as soon as it started loading, thanks to the somewhat strange loading system-employed, which loads the title page as a series of two diagonal stripes! Although this is a little reminiscent of some of the Spectrum loading routines, it does seem to be slightly quicker than the normal method.

Having loaded the game, the next thing that strikes you is the music. This has been implemented using the Advanced Music System (AMS) from Chris Jolly, who also composed the music itself (very fine, I'd say).

The object of the game is to lead your crack team of commandos across enemy-held territory to retrieve the 'spirit' (tiger) plane that has been stolen by the enemy if you can tear yourself away from the music long enough to attempt the perilous task you will find that the enemy troops, that occupy the jungle you must traverse are every bit as quick as yours are. However, the track through the jungle is possible, and requires quick thinking and a very quick joystick and fire-button. Unlike a lot of arcade games, simply blasting away indiscriminately will not allow you an easy way through; careful selection of each shot seems to be the order of the day.

Having managed to get to the captured fighter, you are faced with the perilous flight home. Enemy planes will do

A quick round of Fire



your best to prevent you from doing this. The enemy planes are represented by what must be the largest 'sprites' I have ever seen on the Dragon, and despite their annoying tendency to fire air-to-air missiles at you, they can be beaten so that you can return to base for a hero's welcome.

The game is entertaining and a lot of care has obviously gone into the writing. There is also financial reward to be had for writing Dragon programs: these days, and so most programs are written out of enthusiasm. Dave 'Gibbo' Gibbons is obviously a real Dragon enthusiast. I hope this program gets the recognition it deserves.

The game deserves 95 although I think the price is too steep at £9.95. The current trend is to lower prices, not raise them!

Roy Coates



THIS title is the follow-up to the immensely popular *Shuttle Master*, which took the art of joystick contentionism to new extremes and therefore this game obviously has a lot to live up to — even more so with a price tag on it of just under a tenner.

After a rather odd loading process and a detailed screen at the end of the loading, a crescendo of music bursts forth from the normally restrained Dragon. The music is good throughout, not just a collection of loops acquired from the play command, but a specially written piece.

Enough of the music, and on to the game itself, which is a development of the well-tried and oft abused 'shoot-em-up' theme. Here you must locate and then fly a prototype plane in a three stage game, which allows you to three little commandos for you to get blown into numerous small fragments.

Stage one has you all alone in a rain forest with only your trusty gun to keep you company.

All alone, that is, apart from a few friendly little enemy troops, all with the intent to do you serious damage.

You have to blast them with your gun, which is the first tradition of films and computer games has an eternally limitless arsenal. Scattered about the landscape are large, neat graphic palms, barbed wire and walls to hide behind or dodge past.

Dodging indeed could be the operative word in this game as the detection mechanism is to put it simply not very accurate, and to lose a life when a bullet is still well in front of you is disheartening, especially when one has just passed

through your entire body without feeling as much as a scratch on your chunky graphic uniform.

If you complete this stage, then you progress to a similar second stage where you again shoot all and sundry. Now along a runway.

Finally, having found the plane in stage three, you fly it over the well-drawn landscape adjusting height to get under bridges and collect power, and ultimately get back to base.

When you do get back I suppose you start all over again, although I can't verify this as I've never managed to get there — the game is simple in theory, but many men are lost in action.

When it comes down to it this is simply a hit and run game with a nice tone and aesthetic graphics, but it doesn't have that 'One more go' addictive quality and is a difficult challenge for arcade fans with an itchy trigger finger.

Philip Scott



THE year's 1995 and the prototype IMTC X18 'Spirit' attack plane has been stolen and hidden in Africa. Your mission is to find it and fly it home. Eight soldiers including you have been assigned to the job.

Phase 1

THIS phase is similar to the arcade game *Commando*. You begin just in front of a bridge with many soldiers all around. On this phase you have to find a certain place. When you find the place a message on the screen comes up which says you have completed that phase.

Phase 2

ON this phase you have to run along a bridge in search of a runway. Along the bridge are many soldiers running and firing at anything that moves. The soldiers on this phase make this phase quite hard.

Phase 3

ON this phase you have to fly the Spirit X18 home. This is not as easy as it sounds. At the

start of this phase you see a plane, which is quite large, but the enemy's is much larger but less nimble.

You have to fly under bridges, over buildings, avoid palm trees and the ground, while collecting power modules, and to stay airborne. An altimeter at the side of the screen is lifesaving in this game. This is probably the fastest phase of the game.

The game has excellent sound and quite good graphics. The spaces are unusually large for a Dragon computer game.

All praise goes to the programmer for producing a brilliant sequel to *Shuttle Master*. Prayers also go to Chris Jolly for the sound track. The only thing I hate about the game is on the first phases, where you can get stuck in the palm trees. Overall recommended, go out and buy it!

Gerald Loxley



Tandy/Dragon Basic Converter

Rudy Dwyck converts CoCo Basic tokens to their Dragon equivalent

In the December 1984 Dragon User John Buckley presented a Basic program to convert Dragon User programs into CoCo Basic programs and vice versa. He also explained that the difference between these two Basic dialects rests in their actual commands or syntax but in the way they are coded internally. This is correct if you do not take into account the disc operating system commands, as we shall see. Basic commands are not stored as a string of letters in the computer's memory, but as a one-byte or two-byte "token". The two-byte tokens are needed because there are too many Basic commands for all the values that one byte commands, which are moreover even more restricted because the value of the token byte should be higher than 127, since it would otherwise be recognized as an alphanumeric or graphics character by the Basic interpreter.

A two-byte token consists of a byte with value 255 and another with a value higher than 127. For more detailed information I refer you to John Buckley's article and to my spreadsheet on the Dragon, especially of course, Duncan Street and Ian Summerhill's inside the Dragon. The Dragon and the CoCo use different tokens for most commands, which explains why you cannot run CoCo Basic programs on the Dragon as they are and vice versa. You get two lists of both the Dragon and the CoCo tokens, one sorted alphabetically on the Basic commands, one sorted numerically on the tokens.

Flexible conversation

One solution to the problem of exchanging programs is to save a Basic program written on one machine in ASCII ("CLEAR" "program"/"A" and load it in this format on the other machine. Sadly this soon becomes rather cumbersome if you want to exchange large numbers of programs. Since I am a member of a large C6800 users' group which has far more CoCo members than Dragon owners, this problem soon became evident, so I was rather happy to discover John Buckley's program in one of my old Dragon User issues. Unfortunately his approach has some major drawbacks, first though his program may be Basic it is written in Basic the user has to go through the whole procedure of loading the converter and merge programs, saving the program to be converted, etc. each time he wants to make a conversion. Secondly, because you need RAM to store the Basic converter program in this procedure on the length of the program you can convert. Thirdly, the author had no information on Dragon DOS and his program cannot convert Disc Basic tokens. This is why I decided to write a more flexible and more complete program in machine code. Nevertheless, I must emphasize that without

John Buckley's program and aside my program would never have been written. I also consider this article an effort to promote collaboration between CoCo users and Dragon users and it is a result of meeting the increasing number of letters by CoCo users to Dragon User. Although "COCODRAG" is primarily intended for Dragon users I feel that CoCo owners can also profit from the program and the information provided here. At the end of this article you will find suggestions for adapting the converter so that it will convert Dragon Basic programs into CoCo Basic programs.

The "COCODRAG" converter as you find it here (in both an assembler listing and a Basic program which takes in the object code) translates CoCo Basic programs into Dragon Basic programs and resides in the first graphics page if you use Dragon DOS, in the second graphics page if you are a cassette user. This means that there are no restrictions on the length of the Basic program you want to convert and that there is no need to load "COCODRAG" after each conversion. Do not test the resulting program though, it should contain a PCLEAR instruction you would, of course, lose "COCODRAG"! However, the converter is written in position independent code, so it can be placed anywhere in available RAM, and if you prefer a different location for the converter or if you are a cassette user who needs to issue a PCLEAR to be able to load a really long Basic program, you can relocate "COCODRAG" by loading it in the offset. The converter will not work in BASIC mode since it uses a number of ROM routines, the addresses of which you find in the beginning of the assembler listing (thank you Brian Cudge!).

Another problem which my program tries to answer is that Basic programmers may find machine code routines or graphic equivalents to be poked into the screen memory area in a string within a Basic program. In this case if the only thing a converter program does is look at each byte and see whether its value is higher than 127 and, if so, change it, then the converter will alter these hidden graphics of machine code routines, which may naturally contain codes which the converter would interpret as tokens. "COCODRAG" will skip strings and will thus leave them original and untouched. Doing this proved to be less simple than I thought at first sight. An earlier version of the program ran into white converting some programs because the programmers had not closed their strings with quotation marks (this is not absolutely necessary at the end of a Basic line); I could then test to see whether the end of the Basic line had been reached by checking for the CR/LF-signalling this, but this was impossible (because the string contained machine code in some instances), and this could con-

tain C-values. I solved this by using the information contained in the "header" of each Basic line: the first two bytes of each line contain the address of the beginning of the next line, in this way I could quite simply compare addresses.

Expanding the converter to enable it to handle also Basic programs proved to be complicated too. Most non-file handling commands translate in a fairly straightforward manner, but the differences in file handling between the Dragon DOS and the CoCo DOS are enormous. Moreover, the syntax of quite a number of commands is different: identical in use, though not necessarily in name, are BACKUP, COPY, DIR, DISK/PRINT, DISK/HEAD, DISK/SWAP, DRIVE, KILL, PRINTM and VERIFY. These tokens are converted by the program.

Differences

Minor though naturally important differences are:

- Tandy drives are numbered 0:1:2:3: Dragon drives 1:2:3:4 (although Dragon DOS V4.0 and V4.1 will accept either the first drive; you will have to change the drive numbers in the program yourself)
- "FREEdrive" in CoCo Basic equals "FREE" in Dragon Basic (the "FREE" will be converted but you will have to delete the brackets manually)
- CoCo "SAVE" "program", load, and save" equals Dragon "SAVE" "program", load, and save" ("COCODRAG" converts the "SAVE" token but the "W" will need to be deleted manually). CoCo "SAVE" "Basic" equals Dragon "SAVE" "Basic" but the CoCo version has the "A" (SAVE is ASCII format) option as does SAVE in both Basic; this "A" option, if present, will have to be deleted manually
- CoCo "LOAD" "Basic" equals Dragon "LOAD" "Basic", but the CoCo version has the "W" option, which will cause the Basic program to run immediately after loading but Dragon would quite simply "Wait" "Basic"; CoCo "LOADM" "program" equals Dragon "LOAD" "program.BIN" but whereas the CoCo user can specify an offset which will be added to the load address of the binary file, the Dragon user can specify the absolute address at which the file must be loaded (the token will be converted, but the CoCo "W" in "LOADM" will have to be deleted and the Dragon "BIN" added, and the options will have to be adapted)
- CoCo "CLOSE" (buffer) operates on disk buffers or on all open files, whereas Dragon "CLOSE" (drive) operates on all open files on a specified drive or on the default drive; CoCo UNLOAD drive has the same function as Dragon "CLOSE" drive ("COCODRAG" will replace both CoCo "CLOSE" and "UNLOAD" with Dragon "CLOSE"; the rest of the syntax will have to be adapted by hand)

■ **Coco "EOF"buffer** operates on buffers and returns 0 if there is more data to be read into the buffer and -1 if there is no more data in it. On Dragon "EOF" (or "f") works on files and returns 0 if there is no more data, -1 if there is. (The "EOF" token will be replaced, but the syntax not.)

■ **Coco "LOC"buffer** and "LOC"buffer again work with buffers and refer to record numbers (current and highest respectively), whereas Dragon "LOC" (or "l") and "LOF" (or "l") work on files and refer to the address of a byte; additionally the Dragon "LOF" works on any file, not just a data file (the tokens are replaced, the syntax is not adapted).

■ **Coco "MERGE"Basic** equals Dragon "MERGE"Basic but the Cocoman has the same "R" option as "LOAD" has; moreover, in Caco DOS the program on a disc is merged must have been saved in ASCII (the token is changed, the option must still be dealt with if present).

■ **Coco "RUN"Basic** equals Dragon "RUN"Basic but has an option "R" which will keep all open files open; the Dragon "RUN" also works with machine code programs. I am not sure if this is the case of the Caco; Dragon "CHAIN" is related to the "R" option, but retains the values of variables (token replaced, option not changed if present).

■ **Coco "WRITE" buffer, data** and "PRINT" buffer, data: write data to a buffer but find a relatively close equivalent in Dragon "WRITE" (or "w"); data (inside the semicolon instead of the comma before the data list); Caco "PRINT" can also print data with the USING format, the data must be separated by a comma or a semi-colon; Caco "WRITE" data need to be separated by a comma; Dragon "WRITE" data are separated by a comma and can be written FROM a specific place in the file, FOR a specific length ("WRITE" (or "w"), FROM a, FOR is variable list); "COCODRAW" replaces the Caco "WRITE" token with the Dragon "WRITE" (token could not do so in the case of the Caco "PRINT" token, which will appear as Dragon "PRINT", since all "PRINT" tokens would have become "WRITE" tokens, including the non-disc ones; the rest needs to be adapted manually).

Commands

Although you may get the impression that "COCODRAW" leaves most unchanged or has changed, if you look carefully you will see that most disc Basic programs that do not work with data files can be readily transferred with a very limited amount of editing by hand. Caco programs that deal with data files, however, are more difficult to convert.

The Caco handles both direct access and serial files, like the Dragon, but works with buffers which are opened and allocated and allows the user to refer to a record by its number. It is impractical to convert the tokens of the commands not mentioned above for various reasons, as we shall see. Nevertheless, for the patient and diligent converters among you, I shall briefly present all the non-compatible and unconverted Caco and Dragon commands:

■ **Coco "WORD"number**: converts a number to a five-byte string for storage in a formatted disc file. Caco "WRITE" (variable) converts a five-byte string produced by "WORD" back to the number it represents; neither has seen a word; Dragon equivalent: "WORD" will show as Dragon "HEXDEC" and "CIN" as "LOF", as you can see in the numerically sorted table of tokens.

■ **Coco "LSET" field name = data** left justifies the data within the field name and truncates the right characters if the data is too long; Caco "RSET" field name = data right justifies and truncates the data the reverse way; neither has a Dragon equivalent and both are left unconverted; "LSET" will show as Dragon "CREATE" and "RSET" as "DISCARD".

■ **Coco "FIELD" buffer, field size AS, field name, ...** organizes the space within a direct access buffer into fields, no Dragon equivalent, not converted; you would have to work with the FROM and FOR options of "WRITE"; "FIELD" will appear as Dragon "READ".

■ **Coco "FILES" buffer, buffer size** reserves the specified number of buffers and the total number of bytes specified in "buffer size"; no Dragon equivalent, not converted; you would probably have to work with "CREATE"; "FILES" will show as Dragon "BOOT".

■ **Coco "OPEN" mode**, if buffer, filename, record length opens a buffer (0 = screen, 1 = tape recorder, 2 = printer, 3/5 = disk drive) in the mode specified ("I" = input of data from a sequential file, "O" = output of data to a sequential file, "D" = input or output of data from or to a direct access file); the record length needs to be mentioned only if the file is direct access; Dragon data files need not be opened; for that matter, created; the happens automatically when a data file is accessed; "OPEN" will remain "OPEN" in the converted listing.

■ **Coco "GET" buffer, record number** gets the next record or the record with the number specified and puts it in the buffer; each direct access is less simple on the Dragon; you would need to use the FROM and FOR options of the "READ" command; "COCODRAW" does not convert this token since this would entail the changing of all non-disc GETs as well; "GET" will remain "GET".

■ **Coco "INPUT" buffer, variable, ...** inputs data from the specified buffer, on the Dragon this would become "READ" but "COCODRAW" could not convert this without converting all non-disc INPUTs; "INPUT" will remain "INPUT".

■ **Coco "LINEINPUT" buffer, variable** inputs all the data up to an ENTER character from the specified buffer; in Dragon Basic this would become "FREAD"; but again this could not be converted without converting all the non-disc LINEINPUTs; "LINEINPUT" will remain "LINEINPUT".

■ **Coco "PUT" buffer, record number** assigns a record number to the data in the buffer; no Dragon equivalent; "PUT" will remain "PUT".

■ Dragon commands without a Caco equivalent are: AUTO, BREAK, CHAIN,

CREATE, EPL, EPR, ERROR, FREE, FROM, HMM, PROTECT, SWAP, WAIT, READ and PLREAD.

All the non-converted tokens and indeed any token error spotted by "COCODRAW" will be signalled to the user by the ERROR routine, and the screen will show both the line and the address in which the error occurred. However, the PRINT, GET, PUT and similar cases will be converted to their non-disc Basic equivalents and will naturally not be signalled to the user as errors, so watch out! The program does not actually change the tokens with values below 162, since these have the same meaning in both Caco and Dragon Basic. This saves some processing time.

How do you use "COCODRAW"? You can type in the Basic loader and use this to place in the hex values of the object code line by line. The loader will check whether the data entered are correct. If you have an assembler you can type in the source code listing, written with Desiderius. The assembled or pre-compiled code can be saved to tape with CACOM "COCODRAW", \$MCOO, \$HDEA, \$HCOO, or to disc with SAVE "COCODRAW", \$HCOO, \$HDEA, \$HCOO if you have DOS V4.0, or with SAVE "COCODRAW", \$HCOO, \$HDEA, \$HCOO if you have DOS V4.0 or V4.1.

Assembler listing

You can load your Basic program to be converted and "COCODRAW" in any order you like, and there is no need to reserve space for "COCODRAW"; since it resides in a graphics page, when both have been loaded you simply EXEC the converter and "COCODRAW" will keep you informed of which line number it is converting. This of course slows down the conversion process, but I feel that it is rather silly to sit staring at a blank and unmoving screen, so you get the counter to take away the seconds! After the "CONVERSION COMPLETE" message you can SAVE the converted listing if no errors have occurred, or edit out the errors or unconverted Caco commands as necessary.

The assembler listing can be adapted to convert Dragon Basic programs into Caco Basic programs. To do this you will need to change six lines in the assembler listing: the two lines under YES, SINGLE-BYTE TOKEN FOUND; the two lines under YES, DOUBLE-BYTE TOKEN FOUND; the two lines under YES, DOUBLE-BYTE TOKEN FOUND.

CODE 3 1800000 LERY TORZV1 + PCR
CODE 3 1800000 LERY TORZV1 + PCR
TORZV1 + PCR

The fourth line after that becomes:
COTZ ASD LDA -37

The line after YES, DOUBLE-BYTE TOKEN FOUND is changed into:
COTZ 3800000 COTZ LERY

TORZV1 + PCR

And the second and sixth lines after that become:

CODE 3 1800000 TORZV1 COTZ
TORGND + PCR

CODE ASD LDA -37

Of course, the Dragon commands that have no equivalent in Caco Basic will not be converted, and some of the Dragon disc commands will be converted into the wrong Caco command for the reasons explained above. The people who have no assembler

available should be able to find the raw bytes to be posted in by comparing the original assembler listing with the adapted one (the object code is the second column in the assembler listing, the first is the address at which the code is stored).

I shall answer any questions you might

have if you include a self-addressed envelope and one International Reply Coupon if you live in the EEC or two if you live outside it. If you feel daunted by the task of typing in the listing I can provide a cassette with the assembled program and some (cheap) pointers to try it out on, too.

vided you send me £350 by International Money Order (no cheques please: the bank deducts administration costs from the sum paid, leaving almost nothing of a small sum remitted this way). My address is: Rudi Deyck, Algemeenestraat 6 — C2, B-8200 Brugge 2 (Belgium). Return.

[illegible]

Token	Command		Token	Command		Token	Command	
	Coco	Dragon		Coco	Dragon		Coco	Dragon
128	FOR	FOR	177	OR	CIRCLE	226		IFREAD
129	GO	GO	178	?	PAINT	227		IFWRITE
170	REN	REN	179	=	SET	228		VERIFY
121	"	"	180	^	PUT	229		IFROM
172	ELSE	ELSE	181	MDL	PRAM	230		IFLREAD
173	IF	IF	182	EXIT	PCOPY	231		ISWAP
174	DATA	DATA	183	TRON	PHOSE	232	REN	REN
175	PRINT	PRINT	184	TROFF	PLAY	233	INT	INT
176	ON	ON	185	OFF	BLOAD	234	ABS	ABS
177	INPUT	INPUT	186	LET	RECHN	235	USR	USR
178	END	END	187	LINE	END	236	RND	RND
179	NEXT	NEXT	188	POLY	EO	237	SIN	SIN
180	DOH	DOH	189	FEET	SLD	238	FREE	LOC
181	READ	READ	190	PROSET	SH	239	LEN	LEN
182	ROM	LET	191	SCREEN	SECH	240	STRE	SIN
183	RESTORE	ROM	192	RELEASE	SDI	241	VAL	CON
184	RETURN	RESTORE	193	COLOR	STEP	242	AND	TAN
185	STOP	RETURN	194	CIRCLE	STP	243	CHN	ATH
186	PNTE	STOP	195	SAFAT	+	244	EOF	FREE
187	CONT	PNTE	196	SET	-	245	JOYSTK	LEN
188	LIST	CONT	197	PUT	R	246	LEFTB	TRN
189	CLEAR	LIST	198	PRM	^	247	RIGHTB	VAL
190	REM	CLEAR	199	PCOPY	^	248	MODE	LOC
191	LOAD	NEW	200	PHOSE	AND	249	POINT	CHN
192	SAVE	DEF	201	PLAY	OR	250	THEFTB	EOF
193	OPEN	CLOAD	202	CLOAD	?	251	REN	JOYSTK
194	CLOSE	SAVE	203	RENUM	=	252	ATH	FIX
195	LLIST	OPEN	204	FN	:	253	POS	HECH
196	SET	CLOSE	205	UTIME	UTIME	254	TAN	LEFTB
197	RESET	LLIST	206	DIR	AUTO	255	STP	RIGHTB
198	CLS	SET	207	DRIVE	BACKUP	256	FIX	HECH
199	WFORM	RESET	208	FIELD	DEP	257	LOC	POINT
200	ROUND	CLS	209	FIELD	EDIT	258	POS	CONTEXT
201	AUDIO	WFORM	210	KILL	CHAIN	259	DEF	DEFN
202	TYPE	TOUID	211	LOAD	COPY	260	HECH	WRITE
203	SHUFF	AUDIO	212	LBST	CREATE	261	VARSTB	INSTR
204	TAB	EXEC	213	HERED	DIR	262	INSTR	INSTR
205	TC	SHUFF	214	RENAME	DRIVE	263	TIMER	POINT
206	SR	DEL	215	SET	DEINIT	264	POINT	STRINGS
207	TRON	EXIT	216	SAVE	READ	265	STRINGS	USR
208	MT	TRON	217	WRITE	WRITE	266	CON	LOC
209	SEEP	TROFF	218	VERIFY	ERROR	267	FREE	FREE
210	OFF	LINE	219	UNLOAD	KILL	268	LOC	DEL
211	+	POLY	220	DYING	LOAD	269	LOC	ERR
212	-	PROF	221	BACKUP	HERED	270	HECH	INSTR
213	R	PROSET	222	COPY	PROTECT	271	LOC	LOC
214	^	SCREEN	223	DYING	WAIT	272		FREE
215	^	RELEASE	224	DRIVE	RENAME			
216	AND	COLOR	225		SAVE			

Command	Token		Command	Token		Command	Token	
	Coco	Dragon		Coco	Dragon		Coco	Dragon
1	131	131	FIELD	208		FORE	146	147
2	132	137	FILES	209		FOR	255 154	255 151
3	131	138	FIN	255 152	255 149	FORPOINT	255 160	255 159
4	173	136	FLREAD		220	FORSET	195	173
5	174	138	FN	204		FORSET	135	138
6	180	204	FOR	139	138	FORSETT		222
7	179	203	FREE		255 169	FREE	189	172
8	178	202	FREEAB		216	FREE	197	190
9	175	199	FREEB	255 163	255 163	FREEB	141	141
AND	255 130	255 159	FROM		237	REN	130	130
AND	176	200	FWRITE		217	RENAM	214	224
AND	255 139	255 144	GET	196	177	RENH	203	186
ATH	255 149	255 139	GO	129	127	RESET	187	187
AUTO	161	143	HEXA	255 156	255 147	RESTORE	143	144
AUTO		206	HIGH		255 166	SETUP	144	148
BACKUP	221	267	IF	133	133	SLOWT	255 143	255 151
BEER		208	IMMEX	255 146	255 154	END	255 132	255 132
BOOT		269	INPUT	137	137	REF	215	
CALC		210	INSTR	255 159	255 157	REN	142	143
CAN	255 139	255 148	INT	255 139	255 139	SAVE	216	225
CIRCLE	194	177	JOYTH	255 141	255 142	SCREEN	191	174
CLEAR	149	185	KILL	210	219	SET	156	159
CLEAR	151	172	LEFT	255 148	255 150	SH	255 138	255 138
CLOSE	154	186	LEN	255 135	255 141	SH	255 133	255 134
COS	190	140	LET	184	143	SKIP	163	163
COLOR	193	176	LINE	187	170	SOUND	160	162
COM	147	137	LIST	149	149	SEE	255 135	255 133
COPY	222	211	LIST	189	187	SHRINK		226
COR	255 149	255 137	LOAD	213	220	STEP	169	170
CREATE		212	LOC	255 164	255 167	STOP	145	146
CREATE	153	154	LOC	255 165	255 162	STR	255 136	255 142
CVP	255 162		LOC	255 163	255 134	STRING	255 161	255 160
DATA	134	134	LOC	212		SUB	166	189
DEF	195	192	MOD	255 147	255 155	SWAP		221
DEL	181	166	MOD	213	221	WRITE		227
DIR	140	140	MOVE	255 144	255 152	TAB	164	167
DIV	206	212	MOVE	255 166		TAN	255 150	255 130
DRAW	202	188	MOTOR	139		THEN	167	191
DRAW	198	181	NEW	190	151	TIMER	255 159	255 158
DRIVE	207	214	NEXT	139	139	TO	165	188
DRIVE	223		NOT	168	182	TROFF	184	187
DRIVE	220		OFF	170	194	TRON	183	188
DRIVER		218	ON	136	136	UNLOAD	218	
DRIVE	224		OPEN	183	185	UNTIME	205	205
EDIT	192	147	OP	177	201	USE	255 131	255 141
ELSE	132	132	PAINT	175	175	VAL	255 137	255 143
END	138	138	POLE	192	175	VERIFY	255 157	255 156
END	255 140	255 146	POLY	198	171	VERIFY	210	220
END		255 164	POPPY	199	202	WAIT		223
END		255 165	POPPY	255 154	255 145	WRITE	217	
END		210	PLAY	201	184			
END	162	164	PHASE	200	183			
END	255 151	255 135	POINT	255 148	255 153			

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11/87

If you've got a technical question write to Brian Clogge. Please do not send a SAM as Brian cannot guarantee to answer individual inquiries.

Dragon Answers

Invert the 64

I HAVE had a Dragon 64 computer for a number of years and use it to control my large record collection among other things. In the 32K mode I use a program (published in *Popular Computing Weekly* some years ago) which makes the computer print in inverse (green on black) which is much easier on the eyes.

Unfortunately, this same program does not operate in 64K mode. Can you suggest why and perhaps provide a similar program for the 64?

John Garner
Woody-Castle
New-Malden

The program you are using probably makes some ROM calls and this is the reason it will not operate in 64 mode. As the Basic is in RAM in this mode it is possible to 'patch' it to print green on black which has the advantage of not using any extra memory.

Enter 64K mode and run the following Basic program which will patch the screen printing routine, as well as the CLS and clearscreen routines (as that pressing RESET does not reload the Basic from ROM). If you patch orange on black, then just enter SCROLL 0,1 as the Basic is also patched to allow this.

```
10 FOR I=58700 TO 58730
20 FOR I=58700 TO 58730
30 FOR I=58700 TO 58730
40 FOR I=58730 TO 58730
50 FOR I=58730 TO 58730
60 FOR I=58730 TO 58730
70 FOR I=58730 TO 58730
80 FOR I=58730 TO 58730
90 FOR I=58730 TO 58730
100 FOR I=58730 TO 58730
110 FOR I=58730 TO 58730
```



machine code as I don't think the Dragon has a built-in clock?

Paul Butcher
Wickford, Essex

The Dragon does not have a built-in hardware clock, but the interrupt driven timer function can be used from Basic. If you incorporate the following routine in your program

```
10 INPUT "ENTER TIME OF DAY (H, MM, SS)
20 TIME=0
30 REM YOUR PROGRAM STARTS HERE...
40 SS=INT(TIME/54) TIME=TIME-SS*54
50 IF SS < 58 THEN H=MM+1:SS=SS-1:GOTO 1000
60 IF MM < 58 THEN H=MM+1:MM=MM-1:GOTO 1000
70 IF MM < 58 THEN H=MM+1:MM=MM-1:GOTO 1000
80 RETURN
```

and call it with GOSUB 5000 (or wherever you put it) then it will return the current time of day in the variables H, MM and SS. These are initialised by the user at the start of the program.

The routine works by updating the variables from the TIMER, which is incremented by 1 every 1/500th second.

Keypad input

COULD you tell me if it is possible to use the joystick or printer port to connect up to a numerical keypad for my own design to be used as an input device in a sophisticated game I am currently working on.

Adrian Penhryn
Rushbury
West-Midlands

The printer port cannot be used as this is set up as an output port in the Dragon's hardware configuration. The joystick ports are set analogue to digital devices, so you could wire up a keypad using a different resistance (between 0 — 100K) for each switch. For example, the first six switches on port 0, and the rest on port 1, the resistances going up in steps of 10K each. You'll need to calibrate the keypad by reading the joystick value as you press each key but as long as you don't need to read more than one key at a time this method should be quite successful.

The connections to the joystick ports are as follows:

- Pin 1 — Input line (resistance) for port 0
- Pin 2 — Input line (resistance) for port 1
- Pin 3 — Ground (0 volts)
- Pin 4 — Trigger input line
- Pin 5 — +5 volts output

Brief words

At the moment, I am writing my own 'brief' game for my Dragon with disc drive. It is set as many questions as possible on one disc. I want to use some text compression techniques. Do you know of a commercially available text compressor? Or, could you explain in simple terms how to write one (in Basic) if this is possible?

Marion Hayes

I DO not know of a text compression program that is commercially available for the Dragon disc system. For trivial questions it should be fairly simple to write your own effective compressor.

Almost all questions start with words such as WHO, WHAT, WHERE, WHO etc., and other words such as IN, ON, UP, etc. will come up regularly. If we substitute codes for these words in

your strings then most questions and answers will fit into, for example, 128 characters.

A simple outline of a text compressor is given below. I have not filled up the data statements in next space, but all you need to do is think of 128 commonly used words and enter them in the DATA lines from 540 onwards.

The routine takes the string

```
1000 REM Set up Array of words — this routine is only called
1010 REM once at the start of the program.
1020 CLEAR 5000
1030 DIM W(127):FOR I=0 TO 127:READ W(I):NEXT I
1040 DATA WHO, WHAT, WHERE, WHO, WHO, WHEN, YEAR
1050 REM END OF DATA STATEMENTS HERE
1060 REM Compress routine takes AS and returns it with
1070 REM common words replaced by codes 128-255
1080 CH=0
1090 FOR I=0 TO 127
1100 IF INSTR(W(I),W(I))=0 THEN 1000
1110 X=INSTR(W(I),W(I))
1120 AS=LEFT$(W(I),X)+CHR$(128+X)+MID$(W(I),X)
1130 CH=CH+1:GOTO 1090
1140 NEXT I
1150 IF CH=0 THEN 1000
1160 RETURN
```

passed to AS and returns it 'passed' (for spelling's sake), i.e. — AS; with compressed words replaced by the characters 128-255 (graphics characters). I leave it to you to write the de-compressor which simply needs to replace the characters whose codes are >127 with the associated word.

The right time

I AM writing my own database system in Basic and have come across the following problem. What I want to be able to (and tell the exact time of day so that may be saved at the head of filing along with records. Is this possible from Basic or

Expert's Arcade Arena

Write to "The Expert" at Dragon User
12-13 Little Newport St, London WC2H 7PP,
with all your arcade tips and hints.

HELLO again, and just when you thought the special columns were over you find that we finish off the table are started last month. Now then, several of you, I know, will be wondering why we split it into two parts. There have been several theories

expounded as to the reason for this but the most popular one has been expounded for you to make a choice from:

Was it... A) A polychrome half of it last month and the other half this month.

B) Last month's edition of Dragon User was so packed with information that there simply wasn't room for all of it.

C) The magazine couldn't bear to pay for these pages in the same month!

Name	Graphics	Speed	Type	Comment	Rating
The Dark Pit	3	3	Adventure	Yearly under-rated game by Gordon Teal, this one really should be provided with a free packet of aspirin!	4
Wizard's Quest	4	3	Adventure	It's a shame that this game was a little dated when it came out, it's quite a challenge, if you try the kind of thing.	3
Shocktrooper	5	3	Adventure	The most popular arcade game of 1988 beyond a doubt, it's as good as 1987 as it was when it came out.	5
Conductor in the Mines	4	4	Strategy	Neither interestingly disguised Frogger clone.	2
Draconian	5	2	Shoot-em-up	This is a game where it's actually fun to be killed. Graphically outstanding.	5
Robin Hood	3	3	Collection	A really jolly good pocket money thingy.	3
Jet Boat Coin	2	1-5	Collection	Another jolly-good pocket money thingy.	2
Fearless Freddy	2	3	Collection	Yet another really jolly good pocket money thingy.	3
Revenge 3-D	3	3	Shoot-em-up	Revenge's Revenge for all mankind!	4
Later Zone	3	3	Strategy	You've gotta be fast, but you're also got to have a degree in maths!	3
Fantasy Fight	3	2	Adventure	This was the game that inspired The Dark Pit and it's a very good strategy game. It's slightly easier if you use the map of a few hours back.	3
Jet Set Willy	5	3	Collection	Can anyone tell me how to get back across the garden right to left? I've only done it once, and I don't know how I did it then.	5
Music Cycles	4	3	Shoot-em-up	It was never as easy as it is in the arcade!	3
Dark Star	3	4	Shoot-em-up	Well, the problem with this one is when you've destroyed one planet, you've destroyed them all.	2
Endle Steady Go!	3	3	Collection	Has anyone got a trick to allow you to start on any screen yet?	4
Shinobi Master	4	3	Kung Fu	I've got a really good system for this one last month.	2
Chuckle Egg	3	4	Collection	Well wicked ancestor of Mario Bros, great fun, and all solutions to my address please.	4
Garçon Bennett	5	2	Collection	This one really is very, very difficult. For Experts only.	4
Ninja Warrior	2	3	Kung Fu	I appear to be one of the few people in the world who actually likes this game!	3

Well, answers on a postcard to the usual address, and while we're on the subject of writing and people who write in I have a sad announcement to make. Yes, Mike the Brave is dead. M.R. Vine passed away this month quietly, a noble man, if a bit of a scoundrel at times, but will be sorely missed. "How do you know he has died, or great one?" I hear you spontaneously exclaim. Well, the fact is, at the time of writing I haven't had a letter from him for over a month so I can only assume that he really has passed away.

However Mike, if you're out there and feel like responding to my subtle hint that maybe you need to buy a new pen perhaps you'd like to write, and also enter the following competition which, unlike previous competitions actually has a prize which is worth something! Yes, the winner of this competition gets two games from the Editor's Magic Bottomless Box (so called because whenever we look in it to see what's arrived for us, we look straight through — Z).

However, state your preferences if you win and wait by your garden for you.) but remember, as far as winners are concerned, as Colner McLeod might say, there can be only one.

So here is the competition, and be warned, it's a toughie. To get the prize you must send in as many of the following things as possible. They can be acquired through the use of hacking, skilful games playing, general knowledge, and copying off each other's exam papers... yes... and the Tei-Breaker requires a certain creativity, or at least the ability to bluff. Because the competition is hard the deadline for entries is set quite late. All entries must reach me by the end of May, although winners' entries have a week on this. The winner will be announced in the July edition and I know, too much to think, and all the other things that usually accompany winners!

Right then, where are the things I want in no particular order:

1) The SIMPLEST way of getting infinite

lives in Kung Fu — The Master

2) The code which allowed you to enter the PRIZE draw in Main Credits.

3) What happens after the last screen in Caverns of Chaos.

4) A way of moving to any screen in Endle Steady Go!

5) A system or pattern for Grabber.

6) The names of the (programmable) of ETEBRO-Cascade's truly original Cossack 2000 Masterzone's equally original Hages Jackson (The Dragon versions, obviously).

The tie breaker which will be used if more than one person sends in all six answers (or if more than one person sends in the most answers, because for all I know, no-one knows all six, and it might be between everyone who knows three of them — so don't be discouraged!) is as follows, all I ask you to do is complete this statement in a way which you think will appeal to me the most. From your knowledge of my deep and beautiful personality (I want to be there — Z!) You may send three entries for the tie

breaker but some may consist of more than fifteen words. The sentence I would like you to complete is "The Expert is . . .". Remember please when entering, that there are limits against illegal and standard!

So on to your letters, and of course your maps, starting with the *Dark* (Dive map from Philip Diaz, and if that isn't a test turnaround I don't know what is!) Cheers, Philp.

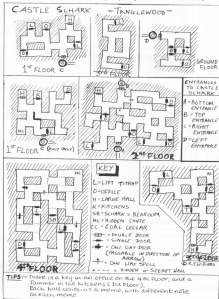
Turning secondly to my friend in Malta, Joe Binici, who, if you'll remember sent me the really incomprehensible *Real Eclipse* map. Well he's sent as a rather better one now of the essential bits in Universe One, and has offered to draw the whole thing in the same way (Please do Joe, and also map

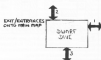
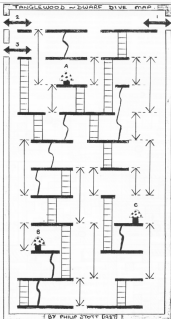
the Universe Two, which you should have received by now).

Back then to Tanglewood and the Castle Schark map by R.J. Williams, very accurate, and drawn with a style that I find rather pleasant but irritates the pants off my friend.

A few notes that might interest you before I go. On Stone Reader if PORK 179D, 189 PORK 184A, 70 - PORK 103S, 126 PORK 179S, 126; PORK 179D, 48 - PORK 103S, 28 and pressing "R" will get you into the cheat mode (that's from Phil Diaz who suggests that "Making Movies" by Gene Sklar is a good album to Zap to - yes I know, I'm mad, the appalling attitudes of the moment are "Get Close" by the Pretenders and "Speaking in Tongues" by Talking Heads -

and wants any suggestions as to the use of a Dongle, send him to me, and the funniest ones get published!)... In FirePole press "R" to select colour at start, then "C" for the code, then use the joystick to enter the four keywords. TECHNIK to visit at stage three, BAPPC for stage two, UOLY for stage three (or is it VOLY?) or ENDLESS for unlimited lives... for Frank ARMITS goes to the cheat menu and MASTY CHICKENS goes to a screen editor/designer (those are the last words from M.R. Vice R.L.R. who profusely apologises the search for "Longest letter in someone called the Expert" AND Most loyal supporter of the Expert's take over the entire world campaign.) That's all for this month. See ya!





Dragon 32/64

TOTAL ECLIPSE

DRAGON

UNIVERSE 1



This map was found in the pocket of an old pirate who travelled all Universe 1. (X)

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High Noon

Jonathan McGowan ducks behind the cacti

HIGH NOON is an addictive high speed machine-code game for two players, featuring smooth moving hi-res graphics. Each player controls a cowboy using the joystick to move up and down, and the fire buttons to shoot. The simple object of the game is to shoot your opponent before he gets you by dodging his bullets and taking cover behind the moving cart and the cacti. The joystick in the right socket controls the cowboy on the left of the screen and vice versa!

Use your bullets wisely — you only have

sixteen to square at each duel. In each player is a set of bullets before either of them is shot, each will gain another sixteen. When the game is first run, you must enter the speed level by typing a key from one to eight (one is the fastest). This affects the speed of the bullets and the cart — the speed with which the cowboys move is the same at all levels. The scores are kept by the computer and can be reset to zero by pressing 'R' during the pause after each 'death'.

To enter the program, type in the BASIC

program that contains the machine code in DATA statements. When finished, save this on tape. Then run the program — it will POKE the machine code into memory, and when this is done, save the code on tape by CONVERSION "HIGHNOON" AH7000, AH700F, AH7030.

It can then be run by BASIC >HPOKE. When loaded from tape, BASIC only will do the job. If you find the program crashes, load back the BASIC program so that you can find and correct any errors.

```
1000 REM ** "HIGH NOON" **
1010 REM ** (C) J. MCGOWAN '86 **
1020
1030
1040 REM * ONCE LOADED INTO
1050 REM * MEMORY, THE PROGRAM
1060 REM * IS STARTED BY:
1070 REM * EXEC: AH7000
1080
1090
2000 DATA 7400,B7,7F,04,06,90,3D,C3,70,00,1F,02,F6,7F,04,4F,3F
2010 DATA 01,86,86,7F,00,59,20,30,C3,06,01,1F,01,86,7F,04
2020 DATA C6,1B,3D,3A,C6,30,46,40,47,64,46,40,47,01,46,40
2030 DATA A7,02,30,86,20,5A,26,8E,39,12,12,00,00,00,00,00
2040 DATA 7500,CC,FF,FF,8E,06,00,8D,81,0C,1E,00,26,F9,8D,7C,8D
2050 DATA 8D,78,8D,34,12,12,00,00,00,00,00,00,00,00,00,00
2060 DATA 7520,86,16,07,8D,76,26,86,06,16,8D,76,26,39,12,10,8E
2070 DATA 71,3D,C6,38,46,40,47,64,46,40,47,01,46,40,47,02
2080 DATA 30,86,20,5A,26,8E,39,12,12,00,00,00,00,00,00,00,00
2090 DATA 7580,86,7F,02,C6,30,3D,C3,06,06,1F,01,10,86,73,46,C6
2100 DATA 38,0C,07,6F,3D,04,8E,4A,6F,02,8E,4A,6F,6A,30,86
2110 DATA 60,5A,26,8D,39,12,12,00,00,00,00,00,00,00,00,00
2120 DATA 7600,86,86,52,86,01,58,81,0F,24,0A,F6,7F,00,C1,06,27
2130 DATA 15,8A,F7,7F,00,20,0F,61,3D,2D,08,F6,7F,00,C1,8A
2140 DATA 27,04,5C,67,7F,00,86,01,50,61,0F,24,0C,F6,7F,01
2150 DATA C1,0B,27,04,5A,67,7F,01,30,61,3D,2D,F6,F6,7F,01
2160 DATA C1,8A,27,F4,5C,67,7F,01,39,12,12,00,00,00,00,00
2170 DATA 7700,7D,7F,06,20,1C,7D,7F,04,27,17,86,FF,00,86,01,26
2180 DATA 10,7A,7F,04,86,7F,00,8B,14,87,7F,07,86,04,87,7F
2190 DATA 06,7D,7F,06,26,1C,7D,7F,05,27,17,86,FF,00,84,02
2200 DATA 26,1C,7A,7F,05,86,7F,01,8B,14,87,7F,09,86,18,87
2210 DATA 7F,0B,38,12,12,00,00,00,00,00,00,00,00,00,00,00
2220 DATA 7780,7D,7F,04,27,62,86,7F,07,C6,30,3D,C3,06,00,1F,01
2230 DATA F6,7F,06,3A,86,FF,A7,8D,46,64,61,FF,26,16,86,46
2240 DATA A7,8A,86,7F,06,4C,61,1F,26,05,66,FF,A7,5A,4F,B7
2250 DATA 7F,0B,30,33,86,FF,A7,64,A7,66,2D,A7,66,00,86,6A
2260 DATA A4,86,C0,A7,86,C0,86,38,A4,86,40,A7,86,40,86,14
2270 DATA A4,86,60,A7,66,6D,8D,7D,57,86,7F,06,61,58,20,04
2280 DATA 4F,7E,78,8D,7F,7F,06,12,7D,7F,06,27,65,86,7F,09
2290 DATA C6,2D,3D,C3,06,00,1F,01,F6,7F,06,5A,86,FF,A7,6A
2300 DATA 30,1F,46,04,61,FF,26,16,06,12,A7,6A,86,7F,06,6A
2310 DATA 61,0D,26,05,06,FF,A7,8A,4F,B7,7F,08,3D,3A,86,FF
2320 DATA A7,64,A7,0B,3D,A7,8B,8D,86,6A,AA,8B,C0,A7,8B,C0
```

```

2330 DATA 88,38,4A,88,40,47,88,40,88,14,AA,88,80,A7,88,80
2340 DATA 80,78,57,88,7F,08,81,05,24,08,88,01,7E,78,80,7F
2350 DATA 7F,08,59,12,12,12,12,88,3F,87,FF,23,8E,84,00,C8
2360 DATA 14,AA,80,87,FF,20,88,78,7A,7F,FF,20,8D,78,7A,8A
2370 DATA 28,8F,88,37,87,FF,23,59,12,12,88,84,4A,28,FD,39
2380 DATA 7880,43,84,01,87,7F,08,12,12,12,12,12,12,88,3F,87
2390 DATA FF,23,8E,7F,08,88,7F,00,3A,AA,84,C8,20,3D,C8,08
2400 DATA 81,1F,81,88,7F,08,C8,18,38,3A,50,88,08,00,8F,7F
2410 DATA 0C,C8,01,34,04,88,20,3D,FD,7F,0E,FC,7F,0C,83,7F
2420 DATA 0E,1F,81,10,8E,72,AA,AA,AA,A7,84,87,FF,2D,AA,AA
2430 DATA A7,81,87,FF,2D,AA,AA,A7,82,87,FF,2D,3D,88,2D,8C
2440 DATA 7F,8C,28,83,3C,84,5C,8E,18,8D,8D,1F,8C,0D,0D,26
2450 DATA 88,C1,3D,27,C3,78,78,83,3C,10,88,37,87,FF,23,59
2460 DATA 780D,88,7F,8A,8D,78,3D,FD,08,88,FD,08,88,FD,08,AA,88
2470 DATA 7F,85,8D,78,2D,FD,C8,7D,FD,88,88,FD,88,8D,8D,12
2480 DATA 87,7F,12,C8,FF,FF,7D,7F,12,27,C8,1C,FE,48,56,7A
2490 DATA 7F,12,38,87,89,12,12,28,88,88,D1,87,7F,FF,8D,77
2500 DATA 8D,2D,E1,12,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D
2510 DATA 7880,88,8A,87,7F,88,88,8D,8D,7F,81,88,81,87,7F,88,87
2520 DATA 7F,00,88,10,87,7F,8A,87,7F,88,7F,7F,88,7F,7F,00
2530 DATA 8D,78,8D,88,FA,87,7F,3D,12,12,8D,78,88,12,12,12
2540 DATA 8D,78,8D,8D,78,88,88,78,8D,4F,8D,7A,0D,8D,01,8D
2550 DATA 7A,0D,8D,77,0D,4F,88,7F,8A,88,7F,8C,88,7F,08,88
2560 DATA 7F,88,81,0D,38,C8,88,8C,87,7F,88,38,7A,7F,FF,38
2570 DATA D2,88,82,87,7F,FF,8D,77,8D,88,7F,88,81,FE,27,C8
2580 DATA 88,7F,8C,88,7F,8D,87,7F,8C,8D,78,8D,7A,7F,2D,28
2590 DATA 82,88,FA,87,7F,2D,7A,7F,8D,2D,AA,12,12,0D,0D,0D
2600 DATA 788D,88,7F,FF,8E,04,0D,8F,88,FE,7F,FF,4F,8D,88,7A,38
2610 DATA 782D,4F,FE,7F,24,8E,04,0D,8F,88,8D,7C,AA,88,04,0D,8E
2620 DATA 88,48,8D,78,88,88,04,01,81,8D,27,C8,8E,C8,4D,8D
2630 DATA 78,88,8E,04,0D,8F,88,FE,7F,38,4F,8D,7C,AA,88,04
2640 DATA 0D,8E,C8,8D,78,88,88,8A,01,81,8D,27,C8,8E,8E,08
2650 DATA 8A,8D,78,88,38,12,8D,7D,C8,C8,8D,C3,7A,AA,7F,C3
2660 DATA C8,C8,AA,AA,A7,8A,3D,88,3D,8A,3F,FE,38,12,12,0A
2670 DATA 8D,78,2D,2F,FF,C3,7F,FF,C8,7F,FF,C7,88,FF,87,FF
2680 DATA 28,8D,8A,77,38,12,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D
2690 DATA 7C8D,8D,8A,77,88,0D,8D,88,AA,8D,88,AA,8E,78,8D,8D,8D
2700 DATA 88,8D,8D,08,27,FE,81,31,2D,FE,81,38,24,FE,8D,3D
2710 DATA 87,7A,82,7F,7F,24,7F,7F,28,8D,7A,0D,88,7F,88,81
2720 DATA 82,27,C8,81,81,27,C8,7C,7F,28,2D,C8,7C,7F,24,8D
2730 DATA 78,8D,8E,4D,88,34,1D,8D,8D,C8,81,52,28,C8,7F,7F
2740 DATA 24,7F,7F,28,8D,78,8D,38,1D,3D,1F,8C,0D,0D,28,8E
2750 DATA 2D,C7,12,12,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D
2760 DATA 788D,8E,C8,C8,1D,8E,78,8D,8C,AA,8D,88,8C,87,2D,28,FE
2770 DATA 38,12,12,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D
2780 DATA 7C8D,8E,8D,8D,8F,8A,C8,8D,88,7A,38,0D,0D,0D,0D,0D,0D
2790 DATA 788D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D,8D
2800 DATA 0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D,0D
2810 DATA 7F,FF,FF,FF,FF,FE,FF,FF,7F,FF,FF,0D,0D,FF,FF,FF
2820 DATA FF,FF,FF,0D,0D,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
2830 DATA 83,88,88,41,8F,FE,FF,FF,7F,FF,FF,38,0D,FF,88,38
2840 DATA C3,07,FF,38,0D,FF,FF,C8,D7,7D,83,1F,FE,FF,FF,7E
2850 DATA 6D,88,88,77,7D,FE,FF,FF,7F,FF,FF,44,0D,FF,7D,87
2860 DATA 5D,7F,FF,44,0D,FF,FF,8A,D7,77,8E,FE,FE,FF,FF,7E
2870 DATA 83,88,88,87,9F,FE,FF,FF,7F,FF,FF,44,0D,FF,8D,FE
2880 DATA 43,1F,FF,44,0D,FF,FF,C8,D7,71,8F,3F,FE,FF,FF,7E
2890 DATA 6D,88,88,87,8D,FE,FF,FF,7F,FF,FF,44,0D,FF,FE,D7
2900 DATA 57,7F,FF,44,0D,FF,FF,8A,D7,77,8E,FE,FF,FF,7E
2910 DATA 83,88,88,77,1F,FE,FF,FF,7F,FF,FF,38,0D,FF,C8,38
2920 DATA D9,07,FF,38,0D,FF,FF,C7,31,1D,8E,3F,FE,FF,FF,7E

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2030 DATA 7F,FF,FF,FF,FF,FE,FF,FF,7E,FF,FF,00,00,FF,FF,FF
 2040 DATA FF,FF,FF,00,00,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,7E
 2050 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
 2060 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
 2070 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
 2080 DATA 7F00,13,2D,01,FE,0E,00,1C,4F,00,40,01,01,11,0C,0E,50
 2090 DATA FF,00,00,00,FF,A1,FD,07,91,0E,94,E1,00,99,32,00
 2000 DATA FA,00,00,00,01,00,00,00,BB,00,00,00,00,00,00,00
 2010 DATA 700D,FF,FF,FF,FF,FF,FF,FF,FF,03,FF,FE,03,FF,FE,01,FF,60
 2020 DATA 00,3F,FF,00,FF,FE,0D,FF,FE,3E,FF,FE,3E,FF,FF,30
 2030 DATA FF,FF,8D,FF,FF,0B,FF,FF,C7,FF,FF,0A,FF,FE,01,FF
 2040 DATA FE,01,FF,FE,01,FF,FE,20,FF,FE,20,FF,FE,20,FF,FD
 2050 DATA 10,80,FD,0E,07,FC,80,DF,FC,80,3F,FC,8F,FF,FC,70
 2060 DATA FF,FC,00,FF,FE,01,FF,FE,01,FF,FE,FF,FF,FF,01,FF
 2070 DATA FF,01,FF,FF,01,FF,FE,01,FF,FF,01,FF,FF,03,FF,FF
 2080 DATA 03,FF,FF,03,FF,FF,03,FF,FF,03,FF,FF,03,FF,FF,03
 2090 DATA FF,FF,C7,FF,FF,C0,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3100 DATA FF,FF,FF,FF,FF,FF,FF,FF,7F,FF,80,3F,FF,00,3F,FE
 3110 DATA 00,00,FF,00,3F,FF,80,3F,FF,80,3F,FE,3F,FF,DE
 3120 DATA 7F,FF,DE,FF,FF,8D,FF,FF,F1,FF,FF,8D,7F,FE,C0,3F
 3130 DATA FF,C0,3F,FF,C0,3F,FF,8D,3F,FF,8D,3F,FE,02,3F,8D
 3140 DATA 84,5F,FD,38,5F,FE,00,5F,FE,00,5F,FF,88,9F,FC,87
 3150 DATA 1F,FF,80,1F,FF,C0,3F,FF,C0,3F,FF,FF,FF,C0,3F
 3160 DATA FF,C0,7F,FF,C0,7F,FF,C0,7F,FF,C0,7F,FF,80,7F,FF
 3170 DATA 80,7F,FF,80,7F,FF,80,FF,FF,80,FF,FF,80,FF,FF,80
 3180 DATA FF,FF,F1,FF,FF,81,FF,FF,00,FF,FF,00,FF,FF,FF
 3190 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3200 DATA E7,3F,FF,FF,FF,FF,E7,70,FF,E7,31,FF,E7,3A,FF,80,33
 3210 DATA FE,C8,3A,FE,C4,73,FE,C0,F1,FE,C1,FE,3A,FF,80,33
 3220 DATA C0,FO,FE,C0,FO,FE,C0,FO,FE,C0,FO,FE,C0,FO,FE,C0
 3230 DATA FO,FE,C0,FO,FE,C0,FO,FE,C0,FO,FE,C0,FO,FE,C0,FO
 3240 DATA 00,80,00,00,80,00,07,FE,00,0F,FC,00,1F,FE,00,1F
 3250 DATA FF,00,1F,FF,C0,1F,FF,80,1F,FF,FO,1F,FF,FO,1F,FF
 3260 DATA FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF
 3270 DATA FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF
 3280 DATA FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF,FO,1F,FF
 3290 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3300 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3310 DATA FE,00,00,7F,FC,00,00,1F,FE,00,00,0F,FO,00,0F
 3320 DATA 80,0F,FO,07,C0,3F,FC,07,C0,3F,FE,00,C0,7F,FE,03
 3330 DATA C0,7F,FE,03,C0,7F,FE,03,C0,7F,FF,00,C0,7F,FF,03
 3340 DATA 80,7F,FF,07,80,7F,FE,07,80,7F,FF,07,80,3F,FE,0F
 3350 DATA FO,3F,FC,0F,FE,1F,C0,1F,FE,1F,FE,1F,FE,1F,FE,3F
 3360 DATA FC,0F,FO,3F,FC,0F,80,7F,FE,07,C0,7F,FE,00,00,FF
 3370 DATA FE,00,00,FF,FF,00,01,E7,87,00,01,E7,00,00,00,00
 3380 DATA E7,80,03,E7,80,00,00,E7,83,00,00,CF,E2,00,00,CF
 3390 DATA F3,00,01,CF,F3,00,01,CF,F1,00,01,8F,FO,00,00,0F
 3400 DATA FE,00,00,3F,FE,00,01,8F,FE,00,01,8F,FE,00,01,8F
 3410 DATA FC,00,01,3F,FE,FE,3F,3F,FE,FF,3F,FC,FF,FF,3F
 3420 DATA FC,FF,FF,3F,FC,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3430 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
 3440 DATA 3F,FC,00,3F,FE,00,3F,FE,00,3F,FC,00,0F,FO,00,0F
 3450 DATA 80,00,07,80,00,07,C7,80,83,C4,49,13,E7,89,E1,84
 3460 DATA 80,01,84,8D,01,8D,00,01,C0,80,03,00,00,01,C0,00
 3470 DATA 03,C0,00,00,80,00,07,80,00,07,80,00,07,80,00,07
 3480 DATA 80,00,01,FO,00,0F,FO,00,0F,FO,00,0F,FO,00,0F,FO
 3490 DATA 00,1F,FO,00,1F,FO,00,1F,FE,00,1F,FE,00,1F,FC,00
 3500 DATA 3F,FC,00,3F,FC,00,3F,FC,00,3F,FC,00,3F,FC,00,7F
 3510 DATA FE,00,7F,FE,00,7F,FE,00,7F,FF,00,FF,FF,00,FF,FF
 3520 DATA 00,FF,FF,FF,FF,FF,FF,FF,FF,00,00,00,00,00,00,00

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3630 DATA 7340,38,44,44,44,38,10,30,10,10,70,30,44,18,20,70,30
3640 DATA 44,18,44,38,18,28,48,70,08,70,40,78,04,78,30,40
3650 DATA 78,44,00,70,09,10,20,40,38,44,38,44,30,38,44,30
3660 DATA 04,78,FF,00,00,00,00,00,00,00,00,00,00,00,00
3670 DATA 7380,30,48,20,48,20,47,20,48,20,30,48,20,4F,20,4F,20
3680 DATA 4E,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3690 DATA 20,20,49,29,20,4A,4F,48,41,54,48,41,4E,20,40,43
3700 DATA 47,4F,57,41,4E,20,31,38,38,38,29,29,20,20,20,20
3710 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3720 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3730 DATA 20,46,48,54,48,52,20,53,50,45,45,44,20,38,31,20
3740 DATA 38,28,3A,00,FF,00,FF,12,FF,00,FF,00,FF,00,FF,00
3750 DATA 73A0,20,28,43,29,20,4A,4F,4E,43,54,48,41,4E,20,40,43
3760 DATA 47,4F,57,41,4E,20,31,38,38,38,20,20,20,20,20,20
3770 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3780 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3790 DATA 20,45,4E,54,48,52,20,53,50,45,45,44,20,28,31,20
3700 DATA 38,29,3A,00,FF,00,FF,12,00,00,00,00,00,00,00,00
3710 DATA XL
3720
3730
4000 CLS:PRINTC38,"PLEASE WAIT":SCREEN0,1
4010 CLEAR 300,817000-1
4020 READ A$
4030 IF A$="X" THEN CLS:PRINT "CODE NOW READY":END
4040 IF LEN(A$)=4 THEN P=VAL("6H"+A$):GOTO 4020
4050 P=6H P,VAL("6H"+A$)
4060 P=P+1
4070 GOTO 4030

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214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 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Winners and Losers

Every month, Gordon Lee will look at some prize programming points from a previous month's competition.

PACALISM solving by simulation was the name of the game in the November edition of *Dragon User*. First of all though, Folio to carried an error which crept in to the article on the Butler's needle experiment which preceded the competition question. Due to the ambiguity of my typewriter, the '1' and the '7' look very similar. Consequently, in the first paragraph, the length of the needle should have been units in length, and not 1. From this, the probability formula should now read as $25/\pi p^2$. Now to return to the competition.

The question involved ending up with six dice showing identical faces, when thrown a maximum of six times. At each subsequent throw, after the first, only selected dice need be thrown. Because of the large number of permutations that may occur during the playing of the game, it was impossible for a program to check every possible one of them in order to assess the chances of success. Such a task would probably take a lifetime — even for the computer — and would certainly not be possible within the closing date of the competition.

The task, therefore, was to devise a program which actually 'played' the game a sufficiently large number of times, while counting the number of winning throws as they occurred. From the data so obtained, an estimate of the probability could be made.

The competition question was to determine how many wins you could expect out of every thousand games played. By using the program listed on page 29 of February's issue, I predicted a result of between 165 and 184 winning games per thousand. This proved to be pretty near the mark, with most entrants coming up with figures within this range.

A number of entrants 'double-checked' their results by running several trials, each of a thousand games, in order to test their programs. My thanks, in particular, to Phil Sapco and Brian Holmes for entering the results of these tests with their entries.

I have included these results, together with all others submitted, on a bar chart in Figure 1. This shows the distribution of your results in the range of 140 to 200 wins per thousand games. The higher the bar on the chart, the more winners of this figure were received.

Rolf Michelsen of Norway also programmed a graph into his listing which plotted each result as it was computed. As each game was played, the graph plotted the probability, and assessed on the results obtained whether I have adapted this idea of a graph in Figure 2, which is a screen-dump of a typical trial. This plots the estimated probability calculated during a run of one thousand games. As Rolf states, the graph looks very ragged with only a few games played, but after 500 games it tends to flatten out, ending at about 180 win games per thousand.

The method of approach adopted by nearly all competitors was to initiate the

Figure 1

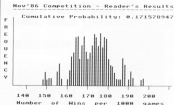
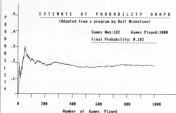


Figure 2



way in which the game would be played using actual dice — the true object of problems solving by simulation.

A number of surprisingly compact programs were received. Examination of these revealed that most did not keep a record of each individual die thrown during a game, and so that once a target number for the dice was decided on in the first or second throw, it was not possible to change this 'target' value.

This device did not appear to materially affect the final score, but it would not account for the remote possibility that it may be advantageous to aim for a different target on a subsequent throw (see the 'rules' of the game in November's competition page).

Finally, Brian Holmes asks about how to turn off the high speed packs 65455.5 (5HFFC02) hex. This is done by using packs 65456.0 (5HFFC03) hex.

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MIKE
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TRAIL

Pyramid entrance

Now Jack Koles, someone out there must have completed Operation Saffee, and yet its otherwise pretty extensive database of solved adventures contains not a single name with this game to its credit. Anyone who's just being modest about it, contact the column, and also contact Margaret Whelan, 21 Acadia Avenue, Chappetown, Southold 06084 AND Margaret can fix it.

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the amulet in *Rekboer*, which he knows will get him through the tomb(s) — but where is it? **HYPOCHONDRIAC** doesn't have a map for *Lost Eclipse*, which is a bit too tricky to put into, but what he's really hoping for is someone to tell him how to get through to the abandoned cleft on this one. He says normally the game stops in space, but on one occasion he got in some points before he loaded, and this got him through to the abandoned cleft.

New *Devil's Jaw* brings what tip, he didn't note the numbers and hasn't been able to find them since — despite a pair of looking and hoping? If anyone can stop this adventure going into his convoluted eclipse, write Joe at 72 Ainslie Street, Hamrun, Malta.

About to announce a total eclipse on *Mystery of the Java Star* is Paul Smith, 17 Gatham Close, Rustden, Northants NN16 9JL, and that's because he can't get the Java Star itself up to the surface without being burned alive. In other words, Smith is getting clipped. He also wants to know how to get off the first floor in *Madness and the Shrouded Abyss*?

An offer comes from Andrew Logan, and that's to help anyone struggling in *Aqueduct 471*. Andrew's address is 18 Darnley Avenue, Falkirk FK1 5HZ, while *Jerusalem Adventure* and *Devil's Island* tips are available from John Smallwood, 51 King's Drive, Fulwood, Preston, Lancs PR2 5HE.

Another kind-hearted reader is Craig Graham, 21 Alnwickhill Drive, Edinburgh EH10 5BE, who's solved *Rekboer*, *Sea Quest*, *Vortex Factor* and *Ring of Darkness*, but is struggling in *Return of the Ring*. Can anyone stop him struggling? And tell him how to get past the zombie in *Mountains of War*?

Joining in the discussion on possible sources of inspiration for *Justification* is Dorian Collins, 80 Clos Gossau, Langnauville, St Saviour, TD, Jersey, Channel Islands. Dorian says that while at a friend's house he spotted a book called *Justification* by Peter Anthony, the third volume in a trilogy called *Split Infinity*, and the storyline of that contains some similarities with the adventure game. Is it, Dorian?

Eaten Eclipse

And the same goes to Donald Morrison, 72 Drelough Road, Inverness IV2 3GT, who offers help on *Ultimate Adventure*, *Calico Island*, *El Diablo* and parts of *Syrry* and *Rekboer* on which he wants to know what use is the steel cannon, where is the ice and how do you get back out of the clefts after getting the *Servant* planet?

Graham Naylor of 30 Haugh Lane, Newbury, Reading, Lancs CH8 3XB would like to get hold of a copy of *Britannia by Reptile*, a strategy game which reviewed in the September 1985 issue. Graham obviously takes his time getting round to buying things, and he's also looking for a copy of *Lost Eclipse*, as he says that his own copy was eaten by his dog. What? Dog eaters cassette tapes? Or does he just mean the instructions? I'm baffled, but if anyone's got either to spare maybe they could contact

Graham, provided the dog doesn't eat postmen too.

Simon Jones of Eye in Suffolk asks for help on *Golden State*, namely how to feed the crab (**SIGUS HTW**) and how to pass the lizard (**ZTRAUD GRAW**), while Christopher Haynes from Birmingham is having problems getting the flask from *Princess Xanica* in *Return of the Ring*. **PODS GILL HELLHOLDS**. Don't worry if it disappears for a while, as she will reappear later.

And that, my friends, is the last bit of backwash writing you're going to get from me. Yes, this is to be my last *Adventure Mail* for *Dragon User* magazine, as I've decided that after almost three years of *Dragon* advertising, the time has come for a change.

One reason is that I think a fresh face will bring fresh life to the column, but the main reason is that I've been getting more and more letters every month asking for information on how to write and program adventure games, and as a non-programmer I can't offer any help in that direction. All I've been able to do is point readers in the direction of my brother Peter's book, *Exploring Adventures on the Dragon*. As of next month, however, you'll be pointed permanently in his direction — he is your new adventure writer. And he will be providing a new regular series on how to program your own adventures.

Writing your own material is becoming increasingly necessary as the commercial releases dwindle and more and more

people want to put out their own titles in the hope of selling a few copies to fellow *Dragon* users.

That's the way the *Dragon* world is going, and as has been stated in *Dragon User* time and again, it's your own enthusiasm for your own machine that will keep everything alive.

I've been very fond of my *Dragon*, as it was the first computer I ever owned, but to be honest I get less and less opportunity to use it as I have to work on newer machines.

Brotherly take-over

One reason I bought my *Dragon* initially was to discover what adventure games were all about, as my brother was heavily into them even then, constantly saving about this game called *Colossus Caves* that he'd played on a Commodore PET at work. So it seems appropriate that I should hand over to him.

You'll be good friends, too, as in addition to his *Dragon* book and three *Dragon* adventures for *Dunwich*, he's written his adventures that *Flonk* published for the Commodore 64, and we've written a few adventures together, too, me doing the planning and him doing the programming. So he knows what he's talking about, and from next month you'll be able to listen to him. I'm sure you'll be interested in what he has to say, and I hope he makes as many friends among *Dragon User* readers as I have.

Adventure Contact

To help puzzled adventurers further, we are including an *Adventure Helpline* — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to *Dragon User Adventure Helpline*.

124/3 Little Newport Street, London WC2H 7PH. As soon as enough letters have arrived, we will start printing them in the magazine.

Don't worry — you'll still have *Adventure Mail* to write to as well!

Adventure

Problem

.....

Name

Address

.....

Adventure Contact

Adventure: Syrry
Problem: How to take and how not to take, but how do I tell him?
Name: Steve Potts
Address: 1 Darnley Road, Westingborough, Lincoln LN4 1AG.

Adventure: Dungeons
Problem: How do I get past the giants? What should I do in *Shark Castle*?
Name: The Exord
Address: 25 Pitt St., Dufftown, Keith, Banffshire, AB8 4AL.

Adventure: 1) *The Vortex Factor* 2) *Reptile*

Adventure: Syrry
Problem: How to use the time machine (open safe and north door 2) Help? 3) Can't visit to Britannia.
Name: Patsy Davis
Address: 88 Foston New Road, Southport, Merseyside PR8 6PH.

Adventure: Total Eclipse
Problem: How many credits are needed to get to a higher technical level?
Name: N. I. Clubb
Address: 254 Baldwin's Lane, Croxley Green, Herts WD3 3LD.

Multiple missiles

Wizard Gordon Lee turns a dartboard into a table

11-00 months, the competition is related to the numbers on a standard dartboard. Take a single dart and aim for any single on the board. If you score either a double, treble, or bull, then throw again. Taking the score from the single dart, move around the dartboard in a clockwise direction, adding at each step the score in that sector of the board. Continue in this way until your running total equals a perfect cube.

For example, if the dart landed on 10, your score would run:

$$10 + 10 = 20; 20 + 2 = 22$$

As 27 is the cube of three, the game would end on this score. Of course, trebles of 1 and 6 would end immediately as they are themselves perfect cubes, but for other starting scores you may need to make more than one circuit of the board.



Can you produce a table showing the final score obtainable from each of the twenty sectors of the board?

Prize

I won the last game of Darts I played — but only because my opponents kept diving under the tables. Only half an hour to get from 500 (or was it 1057) down to the double 3, with four minutes out to retrieve one of my missiles from Mr. Higgins' newly installed rustic crown beam. These modern ceilings are much too low.

My arithmetic is so bad that they won't even let me keep the scores, so I won't be staking my chances on this month's competition, either, but *fantasies* who take up the challenge (and there isn't any excuse now — Christmas is over, it's time to pay the bill!) we have a box full of nice Monocle game (Angloised), which the Expert is going bananas on this month (well, it makes a change from us throwing him bananas). What'd you mean, you don't watch *Wile the Stage*? It's never too late to start getting culture.

Rules

When you have cubed the circle to your satisfaction or before 15th July, whichever happens sooner, send us a listing of your

January winners

We were sure disappointed in the paucity of entries for the January competition, so we had hoped it would bring the Artisan you out into the open. Well, it did, and we've put him over there in the corner with the post ... The entries we did get were of a high quality, though. Congratulations.

The best entry came from G. R. Barber of Sutton Coldfield, and we're awarding him an exclusive mystery game for effort. The other winners are G. A. Stenquist of Chichester, P. J. Taylor of Miss Dabrough, John Smashed of Preston, Daryl Gower of Banbury-on-Thames, Corporal Bishop of BPPO 23 and David Gossman of Marlbury. Best misspeller from Mr. Smallwood. If 0 is the random number, then EPHE is a 20. 01.

Could well be, John. He's been about as much use as a 20 in to me so far ...

These lots will all be receiving their copies of *Deacon's Crises* from Microvision, just as soon as we get them. Just when I thought I'd got this monthly mass mailing bit well and truly sorted out ...

Solution

There are solutions. How many you have a solution to a pattern? The Answer does not appear on its usual page. But we will be looking at some of the best entries at a future date, when Gordon has worked out how they did it.

solution, and any notes you want to include (no cassettes, please) in an envelope marked **APPLE COMPETITION** is large-ed (well, OK, they don't have to be red letters).

Just to keep us happy, we insist that you write a **TRE BREAKER** incorporating the experience of your game as a Dragon user. This month I'm in one of my poetic moods again (it must be the dragons, creating their way up through the patristics and all I want is a short verse or tercet incorporating at least one rhyme for 'tangle').

Mice, aren't? That's why they call me *Butcher Armstrong*.



The final instalment of the mathematical glossary

Magic squares. Popular type of puzzle in which square array of n^2 positive integers, such that the sums of each vertical, horizontal, or main diagonal line of numbers is always the same. The simplest magic square is:

8 16
3 5 7
4 9 2

Generally, magic squares are formed from

an ascending series of integers from 1 upwards. Some squares can be 'multiple magic squares', in which other combinations of component integers also total the magic constant, or in which the square of the integers also total a second constant.

Mersenne Prime. A number in the form $(2^n - 1)$ where n is a prime number and the resulting number is itself prime. Mersenne

primes are closely related to 'perfect' numbers (Q.2).

Octahedron. One of the Platonic solids having eight triangular faces.

Palindromic number. A number which reads the same backwards as forwards eg 102454321. Certain palindromic numbers have unusual properties.

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